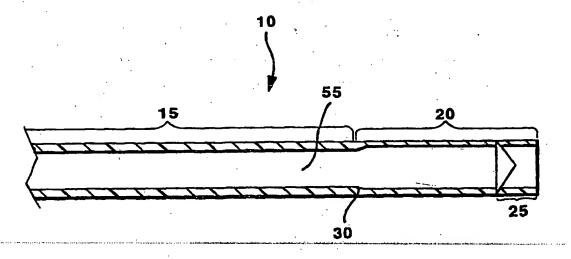


## WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT) (51) International Patent Classification 6: **WO 99/17830** (11) International Publication Number: A1 A61M 25/06, 25/00 (43) International Publication Date: 15 April 1999 (15.04.99) PCT/US98/11089 (81) Designated States: JP, European patent (AT, BE, CH, CY, DE, (21) International Application Number: DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). 4998 (1.06.98) (22) International Filing Date: Published With international search report. (30) Priority Data: ÙS 08/943,473 3:October 1997 (03:10:97) (71) Applicant: MEDTRONIC, INC. [US/US]; 7000 Central Avenue Northeast, Minneapolis, MN 55432 (US). (72) Inventor: LENTZ, David, J.; 5205 Fiore Terrace #B209, La Jolla, CA 92122 (US). (74) Agents: PLUNKETT, Dianne, M., F. et al.; Medtronic, Inc., MS301, 7000 Central Avenue Northeast, Minneapolis, MN 55432 (US). 近位の内径より速位内径はよきい

(54) Title: CATHETER WITH MULTIPLE INTERNAL DIAMETERS



## (57) Abstract

There is disclosed a medical catheter comprising a proximal shaft section and a distal shaft section. The proximal shaft section has an inner diameter and wall thickness which is constant over the length of the proximal shaft section. The distal shaft section has an inner diameter which is greater than the proximal shaft inner diameter and has a step up or taper therebetween. The proximal end of the distal shaft section is aligned proximal to the proximal end of a curved portion of the guiding catheter's distal shaft section.

## WHAT IS CLAIMED IS:

A medical catheter comprising:

a proximal shaft section having an inner diameter, outer diameter and a wall thickness, the inner diameter being constant over the length of the proximal shaft section, the wall thickness being constant over the length of the proximal shaft; and a distal shaft section having an inner diameter, outer diameter and a wall thickness, the

a distal shaft section having an inner diameter, outer diameter and a wall thickness, the distal shaft section inner diameter being greater than the proximal shaft section inner diameter, the distal end of the proximal shaft section being connected to the proximal end of the distal shaft section by a step up.

The catheter according to claim 1 wherein the distal shaft section inner diameter

is sized to slidingly receive interventional devices.

The catheter according to claim 1 wherein a proximal end of the distal shaft section is aligned proximal to the proximal end of a curved portion of the distal shaft section.

The catheter according to claim 1 wherein the inner diameter of the distal shaft section is .002 inches to .004 inches larger than the inner diameter of the proximal shaft section.

The catheter according to claim 1 wherein the inner diameter of the distal shaft section remains constant over the length of the distal shaft section.

The catheter according to claim 1 wherein the wall thickness of the distal shaft section remains constant over the length of the distal shaft section.

The catheter according to claim 1 wherein the outer diameter of the proximal shaft section is equal to the outer diameter of the distal shaft section.

The catheter according to claim 1 wherein the step up is a taper which forms a smooth and gradual transition between the inner diameter of the proximal shaft section and the inner diameter of the distal shaft section.

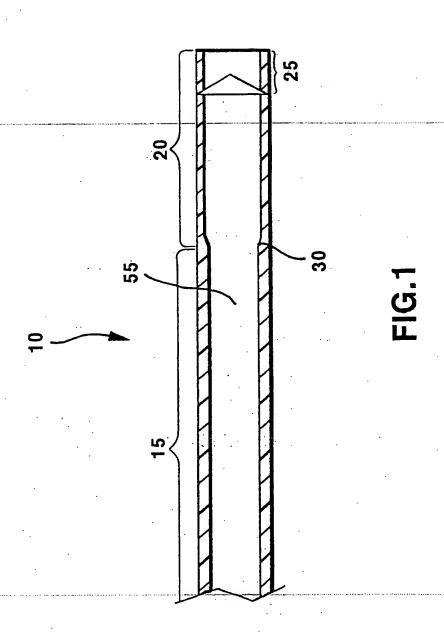
The catheter according to claim 8 wherein the taper is formed by thermal welding.

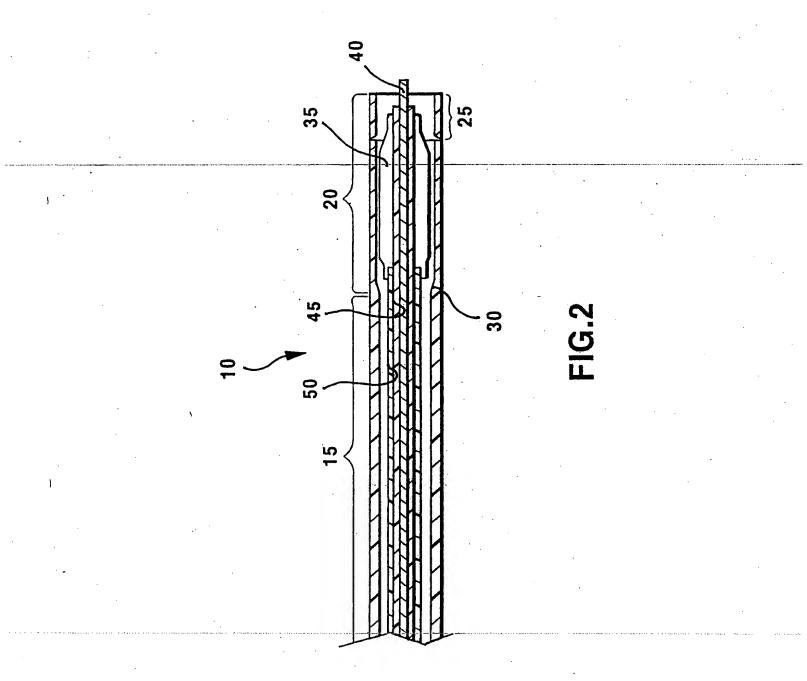
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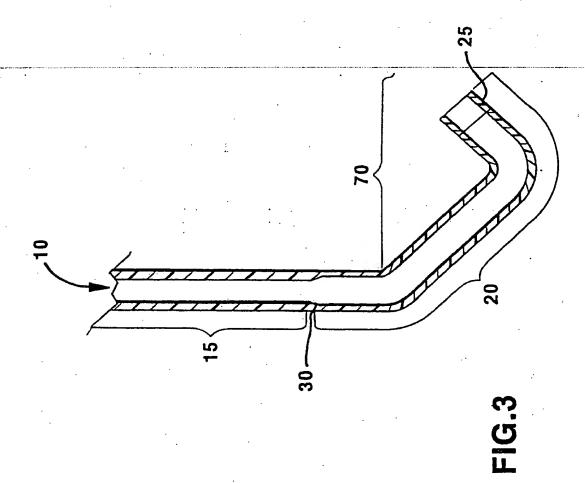
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